DOCUMENT RESUME

ED 243 017 CG 017 384

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TITLE A Developmental Investigation of Relativistic and Dialectical Thought.
PUB DATE Nov 83
NOTE 15p.; Paper presented at the Annual Scientific Meeting of the Gerontological Society (36th, San Francisco, CA, November 17-22, 1983).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adult Development; *Adults; *Age Differences; Cognitive Processes; *Cognitive Structures; *Developmental Stages; Intelligence
IDENTIFIERS *Dialectical Thought; *Relativism

ABSTRACT

Post-formal operational thought is characterized by both relativism and dialecticism. To examine age differences across adulthood in relativistic and dialectical thought, and to determine whether formal operations are necessary but not sufficient for these forms of thought, 20 young (mean age, 19.6), 20 middle aged (mean age, 46.2), and 20 older (mean age, 68.5) adults were administered three cognitive tasks. The Ammons Quick Test was administered to determine the presence of comparable verbal intelligence. Subsequently, subjects were administered four formal operations tasks: separtion of variables; three measures of coordination of two frames of reference; and two life-like dilemmas, about which they were asked to react. Reactions to the dilemmas were placed into four categories of thought (formistic-mechanistic, relativistic, awareness of contradictions, and integration of contradictions into a dialectical whole). An analysis of the results showed that older adults scored significantly higher on the Quick Test than young adults, with middle aged adults falling between the two groups. On formal operations tasks, performance was intact across adulthood. On the life-like dilemmas, older adults showed significantly less rejection and more acceptance of relativistic and dialectical thought. Guttman scale analysis showed that formal operations were necessary but not sufficient for dialectical thought. The findings provide potential support for the hypothesis that dialectical thought is post-formal operational. (BL)

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A Developmental Investigation of Relativistic and Dialectical Thought

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A Developmental Investigation of Relativistic and Dialectical Thought

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Several models of post-formal operational thought incorporating relativism and dialecticism have been proposed. The present study was undertaken to explore age differences in relativistic and dialectical thought, and to determine whether formal operations are necessary but not sufficient for these forms of thought. If so, the findings would lend support to a cognitive-structural model of adult intelligence. Sixty young, middle-aged, and older adults were tested. To assess relativistic and dialectical thought, they were presented with two life-like dilemmas about which they were asked to react. Formal operational tasks were also administered. There were no age differences on one of the dilemmas. On the other, older adults showed significantly less rejection and more acceptance of relativistic and dialectical thought on several measures. Possible effects of maturation, cohort and amount of verbiage are each considered in explaining the findings, and future research directions proposed. Guttman scale analyses showed that formal operations were necessary but not sufficient for dialectical, but not relativistic, thought, potentially supporting the hypothesis that dialectical, but not relativistic thought is post-formal operational.

Several models of post-formal operational thought have been proposed in recent years. Kramer (1983) noted three common features among these models: 1) an awareness of relativity, 2) an acceptance of contradiction, and 3) an integration of contradiction into the dialectical whole. Therefore, post-formal operations would be characterized by relativism and dialecticism. If post-formal operational thought is relativistic and/or dialectical in nature, it should be possible to demonstrate that formal operations are a necessary but not sufficient condition for relativistic and for dialectical thought. Furthermore, if relativistic and dialectical thought can each be considered hallmarks of adult intelligence, one would expect these forms of thought to increase in incidence across adulthood. The present study was undertaken with these two goals in mind: 1) to explore age differences across adulthood in relativistic and dialectical thought, and 2) to determine whether or not formal operations is a necessary but not sufficient condition for relativistic and/or dialectical thought.

Sixty young, middle-aged, and older adults (twenty in each age group) were tested. The young adults ranged in age from 17 to 25 ($\bar{x}$ = 19.65), the middle-aged from 40 to 55 ($\bar{x}$ = 46.15), and the older adults from 60 to 75 years ($\bar{x}$ = 68.50). Half of the subjects were male and half were female. Young subjects were solicited from an introductory psychology course, and most older adults were solicited from continuing education classes at a retired professionals association from the same educational institution. An attempt was made to also solicit middle-aged adults from continuing education and college classes as well, but this was particulary difficult in the case of males; therefore, several were solicited from workplaces.

The Ammons Quick Test was administered to each of the subjects to determine whether the age groups were comparable in verbal intelligence. Four formal operational tasks were then administered, including one measure of the separation of variables (a revised version of Kuhn and Brannock's, 1977 plant task) and three measures of the coordination of two frames of reference (Inhelder and Piaget's, 1958, snail task and two tasks devised by the experimenter: one having to do with grade inflation and the other with changing political climates). The coordination of frames of reference was chosen specifically because it has been hypothesized to be a necessary pre-requisite for post-formal thought (Arlin, 1980), and a simple measure of relativity itself (Inhelder & Piaget, 1958). Subjects were also presented with two life-like dilemmas, each in the form of a one-page story, in order to assess relativistic and dialectical thought. One dilemma centered on a career decision in which a woman considered whether or not to enter the workforce for the first time. The second dilemma centered on a hostage situation set in the future, in which both the hostage takers and their opponents had worthwile objectives. The story was read aloud to the subjects while they read along, and the experimenter then asked for their reactions to the dilemma, using probes designed to tap relativistic and dialectical thought. Their responses were tape-recorded and later transcribed by the author.

Subject's responses to the dilemmas were placed into four categories of thought by two independent raters who were blind with respect to both the hypotheses under investigation and the age and sex of the subjects. The four categories of thought coded were as follows: 1) formistic-mechanistic thought, which represented a rejection of relativistic and dialectical as-

sumptions and embodied a fixed, stable view of the world, 2) awareness of relativity, where the world is seen as constantly changing, indeterminancy is stressed, and truth is based on pragmatics, 3) acceptance of contradiction, where contrasting systems could be seen as coexisting side by side, each having validity, and could also be seen as an inherent feature of reality, and 4) integration of contradiction into dialectical syntheses, where the whole is seen as defining the elements that comprise it, and where any change in the system would necessitate a change in other parts of the system (e.g., through a redefinition of roles). Several subcategories within each of these four categories were devised for the purpose of operationalization. These are presented in Table 1. They were not scored separately.

Insert Table 1 about here

As follows are one example of responses from actual transcripts reflecting each of the four categories of thought:

Formistic/Mechanistic Thought

> S6. (Do you think it might cause problems if she went out, went ahead and took the job?) Marriage-wise, right? (Marriage-wise or other.) Um, I would say since he's the traditional type, too, you know, he would expect her to have the housework done along with the job. I would imagine, and uh, if she could just handle that along with working, I don't think there'd be any real problem, as long as like -- unless he worked, let's say, seven to three and she worked three to eleven, and they never saw each other. (Hmhm.) Then I'm sure it wouldn't work out at all. (Young male, from Career Dilemma).

In the above example, the emphasis on the character's husband being the "traditional type" would preclude him from adjusting to a role change. Only if she could conform to old roles and old expectations would her working be acceptable. The emphasis is on a fixed, formal, stable trait which influences behavior and does not change to fit the changing demands of society and marriage.

Awareness of the Relativistic Nature of Knowledge

> S15. (Do you think they can change?) Men? (Yeah.) Absolutely. They can change. If they realize -- the whole secret of it is to understand the situation of the world we live in. (Hmhm.) There is no such thing as just because my parents or grandparents were raised in that way, for generations, that I have to continue. They lived in a different world than I do, and I have to adjust myself. That's very -- being able to adjust -- without remorse, without fear, and without blame. (Yeah, so the time you're living in is gonna bring about changes in your attitudes and behavior?) Absolutely. (Hmhm. And are those changes normal?) Yes. Uh, obviously, it has been said that the only permanent thing in life is change -- and that is so true, because there is no such thing as an everlasting thing. (Older male, from Career Dilemma).

In the above response, change is seen as given. Society, as reflected in values and lifestyles, is in constant flux. Individuals adapt their perceptions and behaviors to this changing world. Relativity is at the heart of this statement.

Acceptance of Contradictions

> S15. Again, we have to distinguish between uh, exemplary kind of world we live in or a realistic one. (Hmhm, hmhm.) If it were an exemplary kind of world -- (You mean an idealistic one?) -- an idealistic world, then we would say, "No, under no circumstances will we expose our people to damage or death ..." In a realistic world, the way it is, the leaders of the people, whoever lives on the planet, would say, "Okay, we'll give you 100 or 1000 people that you wanted for, for this kind of purpose. In order to say to themselves to begin with that they will not be part of it and volunteer it, volunteer to round up some people for the purpose to give it to uh, the uh, whoever wants them as a hostage to test them on a, the uh, the particular subject. (Older male, from Hostage Dilemma).

In the excerpt above, S15 draws a distinction between two worlds -- two ways of viewing the problem -- the way things should be (i.e., the ideal world) and the way they are (i.e., the real world). These worlds would make different prescriptions for action, and as such contradict each other.

Intergration of Contradiction into the Dialectical Whole

> S43. (Um, yeah, so it's kind of like the organization or the society, or the thinking, can do without a few units, but the unit, but the units can't do without the thinking or the society or the organization?) Yes, sure, because the units, if a few units die, say -- consider them just as units -- the organization can move ahead, but if the thinking dies, then everybody's gonna go backwards. (Older male, from Hostage Dilemma).

In the above excerpt, S43 states that the organization was more crucial to the advancement of civilization than the individual elements -- that the organization transcended the elements. Without the particular elements, the organization could survive, but without the organization the elements would deteriorate. The emphasis is on the dialectical whole, one which surpasses and gives meaning to each of its individual elements.

Each transcript was assigned a frequency score for each category of thought, as well as a rating score indicating the extent to which the respones were clearcut instances of the category. Inter-rater agreement was significantly above chance, and the final scores used for the data analyses were based on joint resolution by the two coders of their coding discrepancies. Coders agreed on which statements were important to code 87% of the time for the career dilemma and 90% of the time for the hostage dilemma. Regarding the actual categorizations made, coders were within one level of each other 86% of the time on the career dilemma and 85% of the time on the hostage dilemma. Chi-square analyses revealed these to be well beyond the

level of chance, which was 70%. The ratings assigned by the coders were within one level of each other between 90 and 100 percent of the time, which was also well beyond the 70% chance level. Only 3 of 480 such comparisons were three levels apart (well below that expected by chance).

Older adults scored significantly higher on the Quick Test than young adults, with middle-aged adults falling in between and not differing significantly from either of the other two groups. Middle-aged males were significantly higher than all other groups in educational level; there were no other differences. Therefore, to determine if age differences existed in relativistic and dialectical thought, analysis of covariances (with Quick Test IQ and educational level partialled out) were performed on the formal operational measures each of the frequency and rating measures. Newman-Keuls post-hoc analyses were conducted on any significant effects.

On the formal operations tasks, there were no age differences on either the plant or the snail tasks. There were significant age differences in the number of errors of a non-absolute nature on the grade inflation and political climates tasks (in men only), $F(2.\ 52) = 3.12$, $p < .05$ and $F(2.51) = 4.56$, $p < .02$, respectively. Post-hoc analyses indicated poorer performance by older subjects in relation to both young and middle-aged subjects on the former task, and by older males relative to middle-aged males on the latter task. However, the fact that there were no differences in the total number of correct responses and the number of absolute (i.e., non- relativistic) responses suggests that the concept of coordinating frames of reference was intact across age. Older subjects merely committed more errors en route to solution. Overall, formal operational performance was intact across adulthood.

On the career dilemma (see Table 2), older adults showed fewer formistic-

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Insert Table 2 about here

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mechanistic responses, $F(2.52) = 3.83$, $p < .03$, as well as lower ratings, $F(2.52) = 4.03$, $p < .02$, than either young or middle-aged adults. Older adults also had higher ratings on awareness of relativity than young or middle-aged adults, $F(2.52) = 3.75$, $p < .03$, indicating that their relativity responses were also more clearcut. Their dialectical synthesis responses were also more frequent, $F(2.52) = 6.61$, $p < .003$, and more clearcut, $F(2.52) = 6.86$, $p < .002$. There were no clearcut age differences on the awareness of relativity frequency measure or on the acceptance of contradiction measures. Also, no age differences emerged between young and middle-aged adults, nor in responses to the hostage dilemma (see Table 2).

Three hypotheses are considered for explanation of the obtained pattern of age differences: maturation, cohort, and amount of verbiage. The maturation hypothesis, of course, is the most attractive from a developmental standpoint and from the standpoint of a fifth stage of cognitive development. However, the lack of age differences between young and middle-aged adults, the lack of age differences on the acceptance of contradiction measures, and the lack of age differences on the hostage dilemma failed to support this hypothesis. The career dilemma may have been more sensitive to age differences than the hostage dilemma; however, one must also look to alternative hypotheses.

One such hypothesis pertains to cohort. Cohort differences may have influenced the findings, in that the career dilemma may have had differential relevance for the different age groups studied. Future research should be aimed at assessing task content by age-group interactions to determine if relativistic and dialectical thought is age-determined, context-specific, or both. Another possible explanation for the finding pertains to verbiage. Older adults produced longer responses to the career dilemma, and this may have accounted in part for the age difference. However, patterns of correlations between verbiage and scores for each category of thought did not match the pattern of obtained age differences. At any rate, verbiage needs to be controlled in future investigations, as it cannot be ruled out as a confound.

Finally, Guttman scale analyses were conducted to explore the hierarchical relationship between formal operational thought and both relativistic and dialectical thought, respectively. Using criteria of scalability and reproducibility, formal operational thought was found to be necessary but not sufficient for the acceptance of contradiction and dialectical synthesis categories, but not for the awareness of relativity category. In fact, the opposite was found with awareness of relativity: relativity was found to be a necessary but not sufficient condition for formal operational thought. These findings suggest that if a stage of post-formal operations exists, it may be dialectical in nature, but <u>not</u> relativistic. This fits in with theoretical considerations as well, in that it has not yet been shown that formal operations cannot account for relativity (Kramer, 1983). However, it has yet to be determined that formal operations cannot account for dialectical thought

as well (Kramer, 1983). While the present study lent empirical support to the hypothesis that dialectical thought is post-formal, more theoretical work needs to be done.

References

Arlin, P. K. Adolescent and adult thought: A search for structures. Paper presented at the 10th Annual Meeting of the Jean Piaget Society, June, 1980, in Philadelphia.

Inhelder, B., & Piaget, J. The growth of logical thinking: From childhood to adolescence. New York: Basic Books, 1958.

Kramer, D. A. Post-formal operations: A need for further conceptualization. Human Development, 1983, 26, 91-105.

Kuhn, D. Development of the isolation of variables scheme in experimental and "natural experience" contexts. Developmental Psychology, 1977, 13, 9-14.

Table 1

Coding System for Relativistic and Dialectical Thought

Category and Subcategories[a]
1. Formism-Mechanism
a. types
b. stability-fixedness
c. linear causality
d. individual as passive reactor
e. absolute principles
f. one-side solutions
2. Awareness of the Relativistic Nature of Knowledge
a. pragmatism
b. change as basic to reality
c. contextualism
1. the broader context
2. tools of knowledge
3. the selected aspect
d. uniqueness-indeterminancy
3. Acceptance of Contradiction
a. statement of conflict
b. contrasting systems
c. the implication of an event's opposite
4. Integration of Contradiction into the Dialectical Whole
a. integration into the organic whole
b. movement through forms
c. reciprocity

[a] The subdivisions of the four categories were used for the purpose of making the coding process clearer. The coders did not score each subcategory separately.

Table 2

The Mean Frequencies and Ratings of Each Age Group for Each Category of Thought on the Career Dilemma

Age Group	Formism-Mechanism	Awareness of Relativism	Acceptance of Contradiction	Dialectical Syntheses
Career Dilemma Frequencies:				
Young	.90	3.00	1.00	.90
Middle-Aged	1.00	2.70	1.20	.90
Older	.25	3.45	1.85	2.05
Ratings:				
Young	1.60	2.45	1.85	1.75
Middle-Aged	1.55	2.55	1.80	1.75
Older	1.20	2.90	2.20	2.45
Hostage Dilemma Frequencies:				
Young	1.10	2.55	1.20	1.05
Middle-Aged	.85	2.70	1.05	.85
Older	.75	3.45	1.65	1.30
Ratings:				
Young	1.70	2.40	1.90	1.85
Middle-Aged	1.50	2.30	1.70	1.65
Older	1.55	2.40	2.25	2.00